

CLAIMS

What is claimed is:

- 1 1. A method for reducing spurious emissions in an amplified signal, the method comprising the
2 steps of:
 - 3 (a) amplifying a first copy of an input signal by a first amplifier sub-system;
 - 4 (b) amplifying one or more other copies of the input signal by one or more other amplifier sub-
5 systems;
 - 6 (c) combining outputs from the first amplifier sub-system and the one or more other amplifier sub-
7 systems to generate a combined amplified output signal, wherein the first amplifier sub-system:
 - 8 (1) applies pre-distortion to the first copy of the input signal to generate a pre-distorted first copy
9 of the input signal, wherein the pre-distortion of the first copy of the input signal is based on the
10 combined amplified output signal; and
 - 11 (2) amplifies the pre-distorted first copy of the input signal to generate the output from the first
12 amplifier sub-system.
- 1 2. The invention of claim 1, wherein a portion of the combined amplified output signal is tapped off
2 and fed back to the first amplifier sub-system for use in pre-distorting the first copy of the input signal.
- 1 3. The invention of claim 1, wherein each other amplifier sub-system:
 - 2 (1) applies pre-distortion to its copy of the input signal to generate a pre-distorted copy of the input
3 signal, wherein the pre-distortion of its copy of the input signal is based on only the output from said
4 each other amplifier sub-system; and
 - 5 (2) amplifies the pre-distorted copy of the input signal to generate the output from said each other
6 amplifier sub-system.
- 1 4. The invention of claim 1, wherein each other amplifier sub-system amplifies its copy of the input
2 signal without performing any pre-distortion.
- 1 5. The invention of claim 1, wherein:
 - 2 during initial operations, each amplifier sub-system pre-distorts its copy of the input signal based on
3 only the output from said each amplifier sub-system; and
 - 4 after the initial operations, the first sub-system pre-distorts its copy of the input signal based on the
5 combined amplified output signal.

1 6. The invention of claim 1, further comprising performing pre-distortion by one of the one or more
2 other amplifier sub-systems based on the combined amplified output signal in case of failure of the pre-
3 distortion processing of the first amplifier sub-system.

1 7. An apparatus comprising:
2 a first amplifier sub-system adapted to amplify a first copy of an input signal;
3 one or more other amplifier sub-systems adapted to amplify one or more other copies of the input
4 signal;
5 a combiner adapted to combine outputs from the first amplifier sub-system and the one or more other
6 amplifier sub-systems to generate a combined amplified output signal, wherein the first amplifier sub-
7 system comprises:
8 (1) a pre-distortion block adapted to apply pre-distortion to the first copy of the input signal to
9 generate a pre-distorted first copy of the input signal, wherein the pre-distortion of the first copy of the
10 input signal is based on the combined amplified output signal; and
11 (2) a power amplifier adapted to amplify the pre-distorted first copy of the input signal to
12 generate the output from the first amplifier sub-system.

1 8. The invention of claim 7, wherein a portion of the combined amplified output signal is tapped off
2 and fed back to the first amplifier sub-system for use in pre-distorting the first copy of the input signal.

1 9. The invention of claim 7, wherein each other amplifier sub-system comprises:
2 (1) a pre-distortion block adapted to apply pre-distortion to its copy of the input signal to generate a
3 pre-distorted copy of the input signal, wherein the pre-distortion of its copy of the input signal is based
4 on only the output from said each other amplifier sub-system; and
5 (2) a power amplifier adapted to amplify the pre-distorted copy of the input signal to generate the
6 output from said each other amplifier sub-system.

1 10. The invention of claim 7, wherein each other amplifier sub-system is adapted to amplify its copy
2 of the input signal without performing any pre-distortion.

1 11. The invention of claim 7, wherein:
2 during initial operations, each amplifier sub-system is adapted to pre-distort its copy of the input
3 signal based on only the output from said each amplifier sub-system; and

4 after the initial operations, the first sub-system is adapted to pre-distort its copy of the input signal
5 based on the combined amplified output signal.

1 12. The invention of claim 7, wherein:
2 the one or more other amplifier sub-systems comprise a second amplifier sub-system adapted to
3 amplify a second copy of the input signal; and
4 the combiner is adapted to combine the outputs from the first and second amplifier sub-systems to
5 generate the combined amplified output signal.

1 13. The invention of claim 12, further comprising:
2 a first splitter adapted to split the input signal into the first and second copies of the input signal;
3 a first tap adapted to tap off a portion of the combined amplified output signal; and
4 a second splitter adapted to split the portion of the combined amplified output signal into two copies,
5 wherein each copy of the portion of the combined amplified output signal is fed back to a different one of
6 the first and second amplifier sub-systems.

1 14. The invention of claim 13, wherein each amplifier sub-system further comprises a switch adapted
2 to select either the corresponding copy of the portion of the combined amplified output signal or the
3 output from said each amplifier sub-system for use in pre-distorting its copy of the input signal.

1 15. The invention of claim 7, wherein at least one of the one or more other amplifier sub-systems is
2 adapted to perform pre-distortion based on the combined amplified output signal to provide a level of
3 redundancy in case of failure of the pre-distortion processing of the first amplifier sub-system.